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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/108,447      | 07/01/1998  | GERALD N. COLEMAN    | 97-677              | 2408             |

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EXAMINER

MCAVOY, ELLEN M

ART UNIT PAPER NUMBER

1764

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |  |                     |  |
|------------------------------|------------------------|--|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b> |  |
|                              | 09/108,447             |  | COLEMAN ET AL.      |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>     |  |
|                              | Ellen M. McAvoy        |  | 1764                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-34, 37, 38 and 40-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-34, 37, 38 and 40-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 31-34, 37, 38 and 40-52 are still rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin (5,284,492) in combination with Ford (3,756,794), Gunnerman (WO 95/27021) and Schwab (5,669,938).

Applicants' arguments filed 14 July 2006 have been fully considered but they are not persuasive. As previously set forth, Dubin discloses a fuel oil composition comprising an emulsion of water and a fuel oil which is used as a combustion fuel for a gas turbine which results in reduced nitrogen oxides emissions and improved combustion efficiency. The emulsion can be either a water-in-fuel oil or a fuel oil-in-water emulsion. The oil phase comprises a light fuel oil, by which is meant a fuel oil having little or no aromatic compounds and consists essentially of relatively low molecular weight aliphatic and naphthenic hydrocarbons. See column 3, lines 41-49. The emulsions which have the most practical significance in applications when combusted alone are those having about 5% to about 50% water and are preferably about 10% to about 35% water-in-fuel oil by weight. Although demineralized or purified water is not required, Dubin teaches that the use of demineralized water in the emulsion is preferred. See column 4, lines 7-35. An emulsification system is most preferably employed to maintain the emulsion. A desirable emulsification system comprises about 25% to about 85% by weight of an

amide, especially an alkanolamide or n-substituted alkyl amine; about 5% to about 25% by weight of a phenolic surfactant including ethoxylated alkylphenols; and about 0% to about 40% by weight of a difunctional block polymer terminating in a primary hydroxyl group. The addition of a component selected from the group consisting of dimer and/or trimer acids, sulfurized castor oil, phosphate esters, and mixtures thereof significantly increase the lubricity of the emulsion. The addition of a corrosion inhibitor is taught in column 8, lines 56 to column 9, line 2. Dubin differs from the instant claims in not teaching the addition of an ignition delay modifier including ammonium nitrate as an emulsion stabilizer and an antifreeze additive (dependent claim 51). However, as evidenced by Ford, Gunnerman and Schwab, such additives are well-known in hydrocarbon fuel emulsions.

Ford discloses emulsified fuel compositions comprising a hydrocarbon fuel such as diesel and gasoline fuels, an emulsifier, water and an emulsion stabilizer. Ammonium nitrate may be added to the emulsion as a freezing point depressant or an antifreeze additive in an amount of 0.1 to 10% by weight, preferably 0.3 to 0.7 % by weight. See column 1, line 49 to column 2, line 26.

Gunnerman discloses aqueous fuel compositions for internal combustion engines. The fuel comprises a fluid emulsion comprising 20 to 80 vol. % water which may be purified, 40 to 60 % carbonaceous fuel such as gasoline and diesel fuels, about 2 to less than 20 vol. % alcohol such as methanol and ethanol, and about 0.3 to 1 vol. % of a nonionic emulsifier. See page 1, lines 30-36. Freezing-point observations indicated a dramatic lowering of the freezing point as the percentage of alcohol is increased. See page 8, lines 17-19.

Schwab discloses diesel fuel emulsions containing an emission reducing amount of at least one fuel-soluble organic nitrate ignition improver such as 2-ethylhexyl nitrate.

The examiner maintains the position that it would have been obvious to the skilled artisan to have followed the teachings of the prior art and to have added the ammonium nitrate anti-freeze additive of Ford, the organic nitrate ignition improver of Schwab, and the anti-freeze inhibitor of Gunnerman to the hydrocarbon fuel emulsion of Dubin in order to provide a hydrocarbon fuel emulsion having improved anti-freeze and ignition properties.

In response, applicants amended independent claim 31 to require that the neutralizer component and the coupling agent be present in the fuel emulsion composition. The coupling agent is "one selected from a group consisting of: a diacid of the Diels-Alder adducts of unsaturated fatty acids and a tri-acid of the Diels-Adler adducts of unsaturated fatty acids and wherein said neutralizer combines with a select acid to form a water soluble salt." However, both of these components are taught in Dubin as additives to the fuel emulsion composition. Dubin discloses the addition of mono-, di- and triethanolamines (applicants' neutralizer component) in column 5, lines 24-26, and the addition of dimer and trimer acids made by the Diels Alder reaction (applicants' coupling agent) in column 7, lines 24-45.

Applicants argue that:

"Although Dubin teaches the use of di- and tri- acids as created for use as lubricity enhancers, the di- and tri-acids are oil soluble. See Col. 7, lines 15-65. Thus, these di- and tri-acids taught in Dubin are not useful at the high temperatures and sheer pressures in an internal combustion engine."

This is not deemed to be persuasive because the claims are drawn to a fuel emulsion composition, and not to a method of using the emulsion in an internal combustion engine. Additionally, applicants teach in the specification on page 9 that “A specific example of a suitable coupling agent is Diacid 1550.” The diacids disclosed in Dubin may also be Diacid 1550. See column 7, lines 44-45. Thus the examiner is of the position that it is not clear how the same additive(s) could have different properties.

Applicants argue that:

“The Examiner has also not provided evidence of a proper motivation to combine the references. The Examiner merely asserts that one would combine the references to improve the anti-freeze and ignition properties of a fuel emulsion. The Examiner has not provided evidence that there is a need in Dubin for such properties. The Examiner is reminded that just because something is within the capabilities of one of ordinary skill in the art does not by itself establish obviousness. *See Ex Parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).”

In response to applicants’ argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the purposes for the various additives described in the references are more than adequate to suggest their common usage in a fuel emulsion composition. It has been held that it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very

same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art. See *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

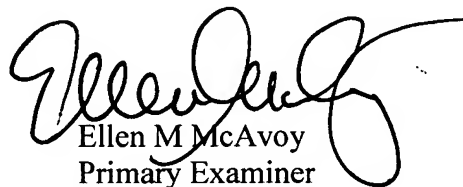
**THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M. McAvoy whose telephone number is (571) 272-1451. The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ellen M McAvoy  
Primary Examiner  
Art Unit 1764

EMcAvoy  
September 22, 2006